

Hawaii F

The proposed unit Hawaii F provides occupied habitat for six species: *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyrtandra giffardii*, *Cyrtandra tintinnabula*, *Phyllostegia racemosa*, *Phyllostegia warshaueri*. It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides habitat to support 1 or more of the 8 to 10 populations for this species and 300 mature individuals per population of *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyrtandra giffardii*, *Cyrtandra tintinnabula*, *Phyllostegia racemosa*, *Phyllostegia warshaueri*, throughout their known historical range considered

by the recovery plans to be necessary for the conservation of these species.

This unit also provides unoccupied habitat for one species: *Clermontia peleana*. Designation of this unit is essential to the conservation of this species because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides habitat to support 1 or more additional populations necessary to meet the recovery objectives of 8 to 10 populations and 100 mature individuals per population, throughout its known historical range (see the discussion of conservation requirements in Section D, and in the table for Hawaii F).

This unit contains a total of 13,906 ha (34,363 ac) on State, Federal, and

private lands. This unit contains portions of the Haakoa, Hakalau, Honolii, Kaawalii, Kaiwiki, Kaiwilahilahi, Kapue, Kaula, Kawainui, Kilau, Kolekole, Laupahoehoe, Manoloa, Manowaiopae, Maulua, Nanue, Ninole, Pahale, Pahoehoe, Pohakupuka, Umauma, Waiaama, Waikaumalo, Wailuku, and Waipunalei watersheds. Unit F contains portions of the Hakalau Forest National Wildlife Refuge, Hilo Forest Reserve, Laupahoehoe Natural Area Reserve and Manowaiopae Forest Reserve. The natural features include Haakoa Stream, Kaawalii Stream, Kaiwilahilahi Stream, Kaloaloa (summit), Kaula Stream, Magnetic Hill, Pahale Stream, Painiu Stream, and Waikaumalo Stream.

Notes	*Historical on Hawaii						
14. Hybridization is possible.							
13. Restricted habitat requirements.						X *	
12. Narrow endemic.							
11. Annual-500/pop.							
10. Short-lived perennial-300/pop.	X	X	X	X	X	X	X
9. Long-lived perennial-100/pop.							
8. Not all occupied habitat needed.		X		X	X		
7. Species with variable habitats.	X	X	X	X	X		X
6. Several occ. vulnerable to destruction.		X	X	X	X	X	X
5. Non-viable populations.		X	X	X	X	X	X
4. Multi-island/no current other islands.	X*						
3. Multi-island/current other islands.							
2. Island endemic.		X	X		X	X	X
1. 8-10 pop. guidelines.	X	X	X	X	X	X	X
Species	<u>Clermontia peleana</u>	<u>Cyanea platyphylla</u>	<u>Cyanea shipmanii</u>	<u>Cyrtandra giffardii</u>	<u>Cyrtandra tintinnabula</u>	<u>Phyllostegia racemosa</u>	<u>Phyllostegia warshaueri</u>

Table for Hawaii F

Hawaii G

The proposed unit Hawaii F provides occupied habitat for 11 species:

Argyroxiphium kauense, *Asplenium fragile* var. *insulare*, *Clermontia lindseyana*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Cyrtandra giffardii*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Plantago hawaiiense*, and *Sicyos alba*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on the island of Hawaii, and provides habitat to support 1 or more of the 8 to 10 populations for each species and 300 mature individuals per population for *Asplenium fragile* var. *insulare*, *Clermontia lindseyana*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyanea*

stictophylla, *Cyrtandra giffardii*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Plantago hawaiiense*, and *Sicyos alba*, or greater than 100,000 total individuals for *Argyroxiphium kauense*, throughout their known historical range considered by the recovery plans to be necessary for the conservation of these species.

This unit also provides unoccupied habitat for one species: *Clermontia peleana*. Designation of this unit is essential to the conservation of this species because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides habitat to support 1 or more additional populations necessary to meet the recovery objectives of 8 to 10 populations and 300 mature individuals per population, throughout its known

historical range (see the discussion of conservation requirements in Section D, and in the table for Hawaii G).

This unit contains a total of 32,286 ha (79,781 ac) on State, Federal, and privately owned lands. It is in portions of Kaahakini, Wailoa, and Wailuku watersheds. It contains portions of the Hawaii Volcanoes National Park, Mauna Loa Forest Reserve, Hilo Forest Reserve, Olaa Forest Reserve, Puu Makaala Natural Area Reserve, Upper Waiakea Forest Reserve, and Waiakea 1942 Lava Flow Natural Area Reserve. The natural features of this unit include Kulani (summit), Lava Flow Of 1852, Lava Flow Of 1855, Lava Flow Of 1881, Puu Kipu, Puu Lalaau, Puu Lau, Puu Makaala, Solomons Waterhole, Waipahoehoe Gulch, and Waterhole Spring.

Table for Hawaii G

Notes	100,000 individuals needed for recovery according to recovery plan.	*Species is wide ranging, each island was probably one large, population. ** Big, moist lava tubes (from 3.05 m to 4.57 m (10 to 15 ft) in diameter), pits, deep cracks, and lava tree molds, with at least a moderate soil or ash accumulation	
14. Hybridization is possible.			
13. Restricted habitat requirements.		X**	
12. Narrow endemic.			
11. Annual-500/pop.			
10. Short-lived perennial-300/pop.		X	X
9. Long-lived perennial-100/pop.	X		
8. Not all occupied habitat needed.	X	X	X
7. Species with variable habitats.	X		X
6. Several occ. vulnerable to destruction.	X	X	X
5. Non-viable populations.	X	X	X
4. Multi-island/no current other islands.			
3. Multi-island/current other islands.		X	X
2. Island endemic.	X		
1. 8-10 pop. guidelines.		X*	X
Species	<u>Argyroxiphium</u> <u>kauense</u>	<u>Asplenium fragile</u> var. <u>insulare</u>	<u>Clermontia lindseyana</u>

Hawaii H

The proposed unit Hawaii H provides occupied habitat for four species: *Argyroxiphium kauense*, *Phyllostegia racemosa*, *Plantago hawaiiensis*, and *Silene hawaiiensis*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on the island of Hawaii, and provides habitat to support 1 or

more of the 8 to 10 populations of *Phyllostegia racemosa*, *Plantago hawaiiensis*, and *Silene hawaiiensis* and 300 mature individuals per population for *Phyllostegia racemosa*, *Plantago hawaiiensis*, and *Silene hawaiiensis*, or greater than 100,000 total individuals for *Argyroxiphium kauense*, throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species (see the

discussion of conservation requirements in Section D, and in the table for Hawaii H).

This unit contains a total of 5,322 ha (13,151 ac) on State, Federal and privately owned lands. This unit is in the Kapapala watershed and contains a portion of Hawaii Volcanoes National Park. The natural features of this unit include the Keamoku Lava Flows, Kipuka Kulalilo, and Kipuka Maunaiu.

Notes	* > 100,000 individuals needed for recovery according to recovery plan.	* Epiphytically.	* Species is wide ranging, each island was probably one large, population.	* Species is wide ranging, each island was probably one large, population.
14. Hybridization is possible.				
13. Restricted habitat requirements.		X*		
12. Narrow endemic.				
11. Annual-500/pop.				
10. Short-lived perennial-300/pop.		X	X	X
9. Long-lived perennial-100/pop.	X			
8. Not all occupied habitat needed.	X			
7. Species with variable habitats.	X		X	X
6. Several occ. vulnerable to destruction.	X	X	X	X
5. Non-viable populations.	X	X	X	X
4. Multi-island/no current other islands.				
3. Multi-island/current other islands.				
2. Island endemic.	X	X	X	X
1. 8-10 pop. guidelines.	0	X	X*	X*
Species	<u>Argyroxiphium kauense</u>	<u>Phyllostegia racemosa</u>	<u>Plantago hawaiiensis</u>	<u>Silene hawaiiensis</u>

Table for Hawaii H

Hawaii I

The proposed unit Hawaii I provides occupied habitat for two species: *Hibiscadelphus giffardianus* and *Melicope zahlbruckneri*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on the island of Hawaii,

and provides habitat to support 1 or more of the 8 to 10 populations for each species and 100 mature individuals per population for *Hibiscadelphus giffardianus* and *Melicope zahlbruckneri*, throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species (see the discussion of conservation requirements

in Section D, and in the table for Hawaii I).

This unit contains a total of 522 ha (1,290 ac) on Federal and privately owned lands. It lies in the Kapapala watershed and in the Hawaii Volcanoes National Park. This unit contains the natural features Kipuka Ki and Kipuka Puaulu.

Species

Notes	*Not enough suitable habitat exists for 8 to 10 populations at this time.	*Species is wide ranging.
14. Hybridization is possible.	X	
13. Restricted habitat requirements.		
12. Narrow endemic.	X	
11. Annual–500/pop.		
10. Short-lived perennial–300/pop.		
9. Long-lived perennial–100/pop.	X	X
8. Not all occupied habitat needed.		X
7. Species with variable habitats.	X	X
6. Several occ. vulnerable to destruction.	X	X
5. Non-viable populations.	X	X
4. Multi-island/no current other islands.		
3. Multi-island/current other islands.		
2. Island endemic.	X	X
1. 8–10 pop. guidelines.	X*	X*
	<u>Hibiscadelphus giffardianus</u>	<u>Melicope zahnbruckneri</u>

Table for Hawaii I

Hawaii J

The proposed unit Hawaii J provides occupied habitat for one species: *Adenophorus periens*. It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides habitat to support 1 or more of the 8 to

10 populations and 300 mature individuals per population for *A. periens*, throughout its known historical range considered by the recovery plan to be necessary for the conservation of this species (see the discussion of conservation requirements in Section D, and in the table for Hawaii J).

This unit contains a total of 5,065 ha (12,516 ac) on State, Federal, and

privately owned lands. This unit lies in the Kaahakini watershed in the north and the Kilauea watershed in the south. This unit contains a portion of the Hawaii Volcanoes National Park and Kahaulea Natural Area Reserve. The natural features of this unit include the Lava Flows of 1969, 1970, and 1972.

Notes	*Species is wide ranging, each island was probably one large, population. **Epiphytic.
14. Hybridization is possible.	
13. Restricted habitat requirements.	X**
12. Narrow endemic.	
11. Annual-500/pop.	
10. Short-lived perennial-300/pop.	X
9. Long-lived perennial-100/pop.	
8. Not all occupied habitat needed.	X
7. Species with variable habitats.	
6. Several occ. vulnerable to destruction.	X
5. Non-viable populations.	X
4. Multi-island/no current other islands.	
3. Multi-island/current other islands.	X
2. Island endemic.	
1. 8-10 pop. guidelines.	X*
Species	<u>Adenophorus periens</u>

Table for Hawaii J

Hawaii K

The proposed unit Hawaii J provides occupied habitat for five species: *Argyroxiphium kauense*, *Asplenium fragile* var. *insulare*, *Clermontia lindseyana*, *Cyanea stictophylla*, and *Phyllostegia velutina*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on the island of Hawaii, and provides habitat to support 1 or more of the 8 to 10 populations for each species and 300 mature individuals per population for *Phyllostegia racemosa*, *Plantago hawaiiensis*, and *Silene*

hawaiiensis, or greater than 100,000 total individuals for *Argyroxiphium kauense*, throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species. This unit also provides unoccupied habitat for one species: *Melicope zahlbruckneri*. Designation of this unit is essential to the conservation of this species because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides habitat to support 1 or more additional populations necessary to meet the recovery objectives of 8 to 10 populations and 100 mature

individuals per population, throughout its known historical range (see the discussion of conservation requirements in Section D, and in the table for Hawaii K).

This unit contains a total of 15,294 ha (37,792 ac) on State and privately owned lands. This unit lies mostly in the Pahala watershed but has a small portion in the Kapapala watershed in the northeast and the Hilea watershed in the southwest. It contains a portion of the Kau Forest Reserve and the Kapapala Forest Reserve. The natural features of this unit include Maunaanu Waterhole and Puu Kinikini.

Table for Hawaii K

Notes	* > 100,000 individuals needed for recovery according to recovery plan.	* Species is wide ranging, each island was probably one large, population. ** Big, moist lava tubes (from 3.05 m to 4.57 m (10 to 15 ft) in diameter), pits, deep cracks, and lava tree molds, with at least a moderate soil or ash accumulation				
14. Hybridization is possible.						
13. Restricted habitat requirements.		X**				
12. Narrow endemic.						
11. Annual-500/pop.						
10. Short-lived perennial-300/pop.		X		X	X	X
9. Long-lived perennial-100/pop.	X					X
8. Not all occupied habitat needed.	X	X		X	X	X
7. Species with variable habitats.	X			X	X	X
6. Several occ. vulnerable to destruction.	X	X		X	X	X
5. Non-viable populations.	X	X		X	X	X
4. Multi-island/no current other islands.						
3. Multi-island/current other islands.		X		X		
2. Island endemic.	X				X	X
1. 8-10 pop. guidelines.	0	X*		X	X	X
Species						
<u>Argyroxiphium kauense</u>						
<u>Asplenium fragile var. insulare</u>						
<u>Clermontia lindseyana</u>						
<u>Cyanea stictophylla</u>						
<u>Melicope zahlbruckneri</u>						
<u>Phyllostegia velutina</u>						

Hawaii L

The proposed unit Hawaii L provides occupied habitat for three species: *Pleomele hawaiiensis*, *Portulaca sclerocarpa*, and *Sesbania tomentosa*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on the island of Hawaii, and provides habitat to support 1 or more of the 8 to 10 populations for each species and 100 mature individuals per population for *Pleomele hawaiiensis*, or 300 mature individuals per population for *Portulaca sclerocarpa* and *Sesbania tomentosa*, throughout their known historical range considered by the recovery plans to be necessary for

the conservation of each species (see the discussion of conservation requirements in Section D, and in the table for Hawaii L).

This unit contains a total of 38,505 ha (95,148 ac) on Federal and State lands. This unit is mainly in the Kapapala watershed and has a portion in the Kilauea watershed in the east and the Pahala watershed in the west. This unit lies completely in the Hawaii Volcanoes National Park. Natural features of this unit include Alae Crater, Aloi Crater, Byron Ledge, Chain Of Craters, Cinder Cone (summit), Devils Throat (crater), Halape (cape), Halemaoli (summit), Halemaumau (crater), Hiiaka Crater, Hilina Pali (pali = cliff), Holei Pali, Kahue Point, Kalanaokuaiki Pali,

Kamakaia Hills, Kamakaia Lava Flow, Kamakaiauka (summit), Kamakaiawaena (summit), Kamooalii Lava Flow, Kau Desert, Keana Bihopa (summit), Keanakakoi Crater, Kilauea Crater, Kilauea Iki Crater, Kipuka Keana Bihopa (lava flow), Kipuka Pepeiau, Kokoolau Crater, Kukalauula Pali, Lava Flow Of 1919, Lava Flow Of 1920, Lava Flow Of 1921, Lava Flow Of 1954, Lava Flow Of 1961, Lava Flow of 1959, Lava Flow of 1961, Lele o Kalihipaa (cliff), Lua Manu Crater, Makahanu Pali, Pauahi Crater, Poliokeawe Pali, Puhimau Crater, Puu Huluhulu, Puu Kaone, Puu Kapukapu, Puu Koea, Puu Puai, Puueo Pali, Spatter Cone, Steaming Bluff, Uwekahuna Bluff, Waiwelawela Point, and Waldron Ledge.

Species

Notes	*Species is wide ranging. †	*Species is wide ranging, each island was probably one large, population.	*Species is wide ranging, each island was probably one large, population.
14. Hybridization is possible.			
13. Restricted habitat requirements.			
12. Narrow endemic.			
11. Annual-500/pop.			
10. Short-lived perennial-300/pop.		X	X
9. Long-lived perennial-100/pop.	X		
8. Not all occupied habitat needed.			X
7. Species with variable habitats.	X	X	X
6. Several occ. vulnerable to destruction.	X	X	X
5. Non-viable populations.	X	X	X
4. Multi-island/no current other islands.			
3. Multi-island/current other islands.		X	X
2. Island endemic.	X		
1. 8-10 pop. guidelines.	X*	X*	X*
<u>Pleomele hawaiiensis</u>			
<u>Portulaca sclerocarpa</u>			
<u>Sesbania tomentosa</u>			

Table for Hawaii L

Hawaii M

The proposed unit Hawaii M (subunits M1 through M5) provides occupied habitat for one species: *Ischaemum byrone*. It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides habitat to support 1 or more of the 8 to 10 populations for this species and 300 mature individuals per population

throughout its known historical range considered by the recovery plan to be necessary for the conservation of this species (see the discussion of conservation requirements in Section D, and in the table for Hawaii M).

This unit cluster contains a total of 967 ha (2,386 ac) on State, Federal, and private lands. M1 and M2 lie in the Kaahakini watershed along the coast and M3, M4, and M5 lie in the Kilauea watershed along the coast. M3 contains

the MacKenzie State Recreation Area and a portion of the Malama-Ki Forest Reserve and M5 lies completely in Hawaii Volcanoes National Park. The natural features of this unit cluster include: M1, no named features but the unit lies just south of Leleiwi Point; M2, no named features but the unit lies adjacent to Opihi Rock, an off-shore islet; M3, Kaakepa (summit) and Lililoa (cape); M4, Waipuku Point; and M5, Puu Manawalea.

Notes	*Species is wide ranging, each island was probably one large, population.
14. Hybridization is possible.	
13. Restricted habitat requirements.	
12. Narrow endemic.	
11. Annual-500/pop.	
10. Short-lived perennial-300/pop.	X
9. Long-lived perennial-100/pop.	
8. Not all occupied habitat needed.	X
7. Species with variable habitats.	X
6. Several occ. vulnerable to destruction.	X
5. Non-viable populations.	X
4. Multi-island/no current other islands.	
3. Multi-island/current other islands.	X
2. Island endemic.	
1. 8-10 pop. guidelines.	X*
Species	<u>Ischaemum byrone</u>

Table for Hawaii M

Hawaii N

The proposed unit Hawaii N (N1 and N2) provides occupied habitat for one species: *Sesbania tomentosa*. It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides habitat to support 1 or more of the 8 to 10 populations and 300

mature individuals per population for this species, throughout its known historical range considered by the recovery plan to be necessary for the conservation of this species (see the discussion of conservation requirements in Section D, and in the table for Hawaii N).

This unit cluster contains a total of 476 ha (1,178 ac) on State and Federal

lands. This unit is in the South Point watershed along the coast. The natural features of this unit include: N1, Keoneokanuku Bay and N2, Kaalo (bay), Kahawai Kolono (stream), Kahukupoko (cape), Kaulani (cape), Kipuka Hanalua, Kipuka Kaahue, Lua (creek), Makalei, Lua o Palahemo (lake), Luakeananolo (bay), Pali Haukeuke, and Puu o Mahana.

Notes	*Species is wide ranging, each island was probably one large, population.
14. Hybridization is possible.	
13. Restricted habitat requirements.	
12. Narrow endemic.	
11. Annual-500/pop.	
10. Short-lived perennial-300/pop.	X
9. Long-lived perennial-100/pop.	
8. Not all occupied habitat needed.	X
7. Species with variable habitats.	X
6. Several occ. vulnerable to destruction.	X
5. Non-viable populations.	X
4. Multi-island/no current other islands.	
3. Multi-island/current other islands.	X
2. Island endemic.	
1. 8-10 pop. guidelines.	X*
Species	<i>Sesbania tomentosa</i>

Table for Hawaii N

Hawaii O

The proposed unit Hawaii O provides occupied habitat for one species: *Mariscus fauriei*. It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides

habitat to support 1 or more of the 8 to 10 populations and 300 mature individuals per population, throughout its known historical range considered by the recovery plan to be necessary for the conservation of this species (see the discussion of conservation requirements in Section D, and in the table for Hawaii O).

This unit contains a total of 215 ha (531 ac) on State and private lands. This unit lies in the South Point Watershed. This unit has no named natural features but lies between Kipuka Puu Kou in the east and the Kamaoa Homesteads in the west.

Table for Hawaii O

Notes	*Species is wide ranging, each island was probably one large, population.
14. Hybridization is possible.	
13. Restricted habitat requirements.	
12. Narrow endemic.	
11. Annual-500/pop.	
10. Short-lived perennial-300/pop.	X
9. Long-lived perennial-100/pop.	
8. Not all occupied habitat needed.	
7. Species with variable habitats.	X
6. Several occ. vulnerable to destruction.	X
5. Non-viable populations.	X
4. Multi-island/no current other islands.	
3. Multi-island/current other islands.	X
2. Island endemic.	
1. 8-10 pop. guidelines.	X*
Species	<u>Mariscus fauriei</u>

Hawaii P

The proposed unit Hawaii P provides occupied habitat for one species: *Pleomele hawaiiensis*. It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides

habitat to support 1 or more of the 8 to 10 populations and 100 mature individuals per population for *Pleomele hawaiiensis* throughout its known historical range considered by the recovery plan to be necessary for the conservation of this species (see the discussion of conservation requirements

in Section D, and in the table for Hawaii P).

This unit contains a total of 547 ha (1,351 ac) on State and privately owned lands. This unit lies completely in the Kauna watershed. Natural features of this unit include Kipuka Kapulehu, Kipuka Mamane, and the Lava Flow of 1887.

Table for Hawaii P

Notes	*Species is wide ranging.
14. Hybridization is possible.	
13. Restricted habitat requirements.	
12. Narrow endemic.	
11. Annual-500/pop.	
10. Short-lived perennial-300/pop.	
9. Long-lived perennial-100/pop.	X
8. Not all occupied habitat needed.	
7. Species with variable habitats.	X
6. Several occ. vulnerable to destruction.	X
5. Non-viable populations.	X
4. Multi-island/no current other islands.	
3. Multi-island/current other islands.	
2. Island endemic.	X
1. 8-10 pop. guidelines.	X*
Species	<u>Pleomele hawaiiensis</u>

Hawaii Q

The proposed unit Hawaii Q provides occupied habitat for five species: *Colubrina oppositifolia*, *Diellia erecta*, *Flueggea neowawraea*, *Gouania vitifolia*, and *Neraudia ovata*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on the island of Hawaii, and provides habitat to support

1 or more of the 8 to 10 populations for each species and 100 mature individuals per population for *Colubrina oppositifolia* and *Flueggea neowawraea*, or 300 mature individuals per population for *Diellia erecta*, *Gouania vitifolia*, and *Neraudia ovata*, throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species (see the discussion of

conservation requirements in Section D, and in the table for Hawaii Q).

This unit contains a total of 3,549 ha (8,770 ac) on State and privately owned lands. This unit lies mostly in the Kauna watershed with a portion in the Kiilae in the southwest. A large portion of this unit lies in the Manuka Natural Area Reserve. The natural features in this unit include unnamed lava flows and tubes.

Notes	*Species is wide ranging, each island was probably one large, population.	*Species is wide ranging, each island was probably one large, population.	*Species is wide ranging, each island was probably one large, population.	*Species is wide ranging, each island was probably one large, population.	
14. Hybridization is possible.					
13. Restricted habitat requirements.					
12. Narrow endemic.					
11. Annual-500/pop.					
10. Short-lived perennial-300/pop.		X		X	X
9. Long-lived perennial-100/pop.	X		X		
8. Not all occupied habitat needed.	X		X		X
7. Species with variable habitats.	X	X	X	X	X
6. Several occ. vulnerable to destruction.	X	X	X	X	X
5. Non-viable populations.	X	X	X	X	X
4. Multi-island/no current other islands.					
3. Multi-island/current other islands.	X	X	X	X	
2. Island endemic.					X
1. 8-10 pop. guidelines.	X*	X*	X*	X*	X
Species	<u>Colubrina oppositifolia</u>	<u>Diellia erecta</u>	<u>Flueggea neowawraea</u>	<u>Gouania vitifolia</u>	<u>Neraudia ovata</u>

Table for Hawaii Q

Hawaii R

The proposed unit Hawaii R provides occupied habitat for two species: *Diellia erecta* and *Flueggea neowawraea*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on the island of

Hawaii, and provides habitat to support 1 or more of the 8 to 10 populations for each species and 100 mature individuals per population for *Flueggea neowawraea*, or 300 mature individuals per population for *Diellia erecta*, throughout their known historical range considered by the recovery plans to be necessary for the conservation of each

species (see the discussion of conservation requirements in Section D, and in the table for Hawaii R).

This unit contains a total of 387 ha (955 ac) on State and privately owned lands. This unit lies in the Kiilae watershed and lies mostly in the South Kona Forest Reserve. There are no named natural features in this unit.

Table for Hawaii R

Notes	*Species is wide ranging, each island was probably one large, population.	*Species is wide ranging, each island was probably one large, population.
14. Hybridization is possible.		
13. Restricted habitat requirements.		
12. Narrow endemic.		
11. Annual-500/pop.		
10. Short-lived perennial-300/pop.	X	
9. Long-lived perennial-100/pop.		X
8. Not all occupied habitat needed.		X
7. Species with variable habitats.	X	X
6. Several occ. vulnerable to destruction.	X	X
5. Non-viable populations.	X	X
4. Multi-island/no current other islands.		
3. Multi-island/current other islands.	X	X
2. Island endemic.		
1. 8-10 pop. guidelines.	X*	X*
Species	<u>Diellia erecta</u>	<u>Flueggea neowawraea</u>

Hawaii S

The proposed unit Hawaii S provides occupied habitat for two species: *Cyanea hamatiflora* ssp. *carlsonii* and *Cyanea stictophylla*. It is proposed for designation because it contains the physical and biological features that are considered essential for their

conservation on the island of Hawaii, and provides habitat to support 1 or more of the 8 to 10 populations for each species and 300 mature individuals per population throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species (see the discussion of conservation requirements

in Section D, and in the table for Hawaii S).

This unit contains a total of 383 ha (947 ac) on State and privately owned lands. This unit is in the Kiilae watershed. This unit contains a portion of the Kipahoehoe Natural Area Reserve. The natural feature of this unit includes a portion of the Lava Flow of 1919.

Species	Notes		
	14. Hybridization is possible.		
	13. Restricted habitat requirements.		
	12. Narrow endemic.		
	11. Annual-500/pop.		
	10. Short-lived perennial-300/pop.	X	X
	9. Long-lived perennial-100/pop.		
	8. Not all occupied habitat needed.		
	7. Species with variable habitats.	X	X
	6. Several occ. vulnerable to destruction.	X	
	5. Non-viable populations.	X	X
	4. Multi-island/no current other islands.		
	3. Multi-island/current other islands.		
	2. Island endemic.	X	X
	1. 8-10 pop. guidelines.	X	X
	<u>Cyanea hamatiflora</u> ssp. <u>carlsonii</u>	<u>Cyanea stictophylla</u>	

Table for Hawaii S

Hawaii T

The proposed unit Hawaii T provides occupied habitat for one species: *Cyanea stictophylla*. It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides habitat to support 1 or more of the 8 to 10 populations and 300 mature individuals per population for this species throughout its known historical range considered by the recovery plan to

be necessary for the conservation of this species.

This unit also provides unoccupied habitat for one species: *Cyanea hamatiflora* ssp. *carlsonii*. Designation of this unit is essential to the conservation of this species because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides habitat to support 1 or more additional populations necessary to meet the recovery objective of 8 to 10

populations and 300 mature individuals per population for this species throughout its known historical range (see the discussion of conservation requirements in Section D, and in the table for Hawaii T).

This unit contains a total of 1,489 ha (3,681 ac) on State and privately owned lands. This unit is in the Kiilae watershed contains a portions of the South Kona Forest Reserve. Natural features of this unit include portions of the Lava Flow of 1950.

Table for Hawaii T

Notes		
14. Hybridization is possible.		
13. Restricted habitat requirements.		
12. Narrow endemic.		
11. Annual-500/pop.		
10. Short-lived perennial-300/pop.	X	X
9. Long-lived perennial-100/pop.		
8. Not all occupied habitat needed.		
7. Species with variable habitats.	X	X
6. Several occ. vulnerable to destruction.	X	
5. Non-viable populations.	X	X
4. Multi-island/no current other islands.		
3. Multi-island/current other islands.		
2. Island endemic.	X	X
1. 8-10 pop. guidelines.	X	X
Species	<u>Cyanea hamatiflora</u> ssp. <u>carlsonii</u>	<u>Cyanea stictophylla</u>

Hawaii U

The proposed unit Hawaii U provides occupied habitat for one species: *Cyanea hamatiflora* ssp. *carlsonii*. It is proposed for designation because it contains the physical and biological features that are considered essential for the conservation of *Cyanea hamatiflora*

ssp. *carlsonii* on the island of Hawaii, and provides habitat to support 1 or more of the 8 to 10 populations for this species and 300 mature individuals per population throughout its known historical range considered by the recovery plan to be necessary for the conservation of this species (see the discussion of conservation requirements

in Section D, and in the table for Hawaii U).

This unit contains a total of 615 ha (1,520 ac) on Federal land. This unit is in the Kiilae watershed and lies in a portion of the Hakalau Forest National Wildlife Refuge, Kona Unit. There are no named natural features of this unit.

Notes	
14. Hybridization is possible.	
13. Restricted habitat requirements.	
12. Narrow endemic.	
11. Annual–500/pop.	
10. Short-lived perennial–300/pop.	X
9. Long-lived perennial–100/pop.	
8. Not all occupied habitat needed.	
7. Species with variable habitats.	X
6. Several occ. vulnerable to destruction.	X
5. Non-viable populations.	X
4. Multi-island/no current other islands.	
3. Multi-island/current other islands.	
2. Island endemic.	X
1. 8–10 pop. guidelines.	X
Species	<u>Cyanea hamatiflora</u> ssp. <u>carlsonii</u>

Table for Hawaii U

Hawaii V

The proposed unit Hawaii V provides occupied habitat for one species: *Nothocestrum breviflorum*. It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii,

and provides habitat to support 1 or more of the 8 to 10 populations and 100 mature individuals per population for *Nothocestrum breviflorum* throughout its known historical range considered by the recovery plan to be necessary for the conservation of this species (see the discussion of conservation requirements

in Section D, and in the table for Hawaii V).

This unit contains a total of 951 ha (2,351 ac) on privately owned land. This unit is in the Kiilae watershed in the south and Kealakekua watershed in the north. This unit has no named natural features.

Notes	
14. Hybridization is possible.	
13. Restricted habitat requirements.	
12. Narrow endemic.	
11. Annual-500/pop.	
10. Short-lived perennial-300/pop.	
9. Long-lived perennial-100/pop.	X
8. Not all occupied habitat needed.	X
7. Species with variable habitats.	X
6. Several occ. vulnerable to destruction.	X
5. Non-viable populations.	X
4. Multi-island/no current other islands.	
3. Multi-island/current other islands.	
2. Island endemic.	X
1. 8-10 pop. guidelines.	X
Species	<u>Nothoestrum breviporum</u>

Table for Hawaii V

Hawaii W

The proposed unit Hawaii W provides occupied habitat for one species: *Delissea undulata*. It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides habitat to support 1 or more of the 8 to 10 populations and 300 mature individuals per population for *Delissea undulata* throughout its known

historical range considered by the recovery plan to be necessary for the conservation of this species.

This unit also provides unoccupied habitat for one species: *Solanum incompletum*. Designation of this unit is essential to the conservation of this species because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii, and provides habitat to support 1 or more additional populations necessary to meet the

recovery objectives of 8 to 10 populations and 300 mature individuals per population for *Solanum incompletum* throughout its known historical range (see the discussion of conservation requirements in Section D, and in the table for Hawaii W).

This unit contains a total of 1,479 ha (3,654 ac) on private land. This unit lies in the Waiaha watershed. The natural area of this unit includes Puu Lehua and a portion of Kipuka Paluli.

Notes		
14. Hybridization is possible.		
13. Restricted habitat requirements.	X*	
12. Narrow endemic.		
11. Annual-500/pop.		
10. Short-lived perennial-300/pop.	X	X
9. Long-lived perennial-100/pop.		
8. Not all occupied habitat needed.		
7. Species with variable habitats.		X
6. Several occ. vulnerable to destruction.	X	X
5. Non-viable populations.	X	X
4. Multi-island/no current other islands.		X
3. Multi-island/current other islands.	X	
2. Island endemic.		
1. 8-10 pop. guidelines.	X	X*
Species	<u>Delissea undulata</u>	<u>Solanum incompletum</u>

Table for Hawaii W

*Dry cinder cones
 *Not enough suitable habitat for 8 - 10 (unable to identify suitable habitat on other islands in historical range).

Hawaii X

The proposed unit Hawaii X provides occupied habitat for one species: *Cyanea hamatiflora* ssp. *carlsonii*. It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii,

and provides habitat to support 1 or more of the 8 to 10 populations and 300 mature individuals per population for *Cyanea hamatiflora* ssp. *carlsonii* throughout its known historical range considered by the recovery plan to be necessary for the conservation of this species (see the discussion of

conservation requirements in Section D, and in the table for Hawaii X).

This unit contains a total of 138 ha (340 ac) on State owned lands. This unit is in the Waiaha watershed and contains a portion of the Honuaula Forest Reserve. There are no named natural features in this unit, though it lies southwest of Puu Laalaa.

Notes	
14. Hybridization is possible.	
13. Restricted habitat requirements.	
12. Narrow endemic.	
11. Annual-500/pop.	
10. Short-lived perennial-300/pop.	X
9. Long-lived perennial-100/pop.	
8. Not all occupied habitat needed.	
7. Species with variable habitats.	X
6. Several occ. vulnerable to destruction.	X
5. Non-viable populations.	X
4. Multi-island/no current other islands.	
3. Multi-island/current other islands.	
2. Island endemic.	X
1. 8-10 pop. guidelines.	X
Species	<u>Cyanea hamatiflora</u> ssp. <u>carlsonii</u>

Table for Hawaii X

Hawaii Y

The proposed unit Hawaii Y (subunits Y1 and Y2) provides occupied habitat for two species: *Isodendrion pyrifolium* and *Neraudia ovata*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on the island of Hawaii, and provides habitat to support 1 or

more of the 8 to 10 populations for each species and 300 mature individuals per population throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species (see the discussion of conservation requirements in Section D, and in the table for Hawaii Y).

This unit cluster contains a total of 546 ha (1,350 ac) on State and privately

owned lands. This unit is in the Keahole watershed in the north and the Waiaha watershed in the south and contains a portion of the Honokohau watershed. There are no named natural features in this unit but it lies between the Queen Kaahumanu Highway (in the west) and Palani Road (in the east). It is inland and east of Honokohau Bay and inland and north of Kalani Bay.

Notes			
	14. Hybridization is possible.		
	13. Restricted habitat requirements.		
	12. Narrow endemic.		
	11. Annual-500/pop.		
	10. Short-lived perennial-300/pop.	X	X
	9. Long-lived perennial-100/pop.		
	8. Not all occupied habitat needed.		X
	7. Species with variable habitats.	X	X
	6. Several occ. vulnerable to destruction.	X	X
	5. Non-viable populations.	X	X
	4. Multi-island/no current other islands.	X	
	3. Multi-island/current other islands.		
	2. Island endemic.		X
1. 8-10 pop. guidelines.	X	X	
Species	<u>Isodendrion pyriformum</u>	<u>Neraudia ovata</u>	

Table for Hawaii Y

Hawaii Z

The proposed unit Hawaii Z provides occupied habitat for 12 species:

Bonamia menziesii, *Colubrina oppositifolia*, *Cyanea stictophylla*, *Delissea undulata*, *Flueggea neowawraea*, *Hibiscadelphus hualalaiensis*, *Hibiscus brackenridgei*, *Nothoestrum breviflorum*, *Phyllostegia velutina*, *Plantago hawaiiensis*, *Pleomele hawaiiensis*, and *Zanthoxylum dipetalum* var. *tomentosum*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on the island of

Hawaii, and provides habitat to support 1 or more of the 8 to 10 populations for each species and 100 mature individuals per population for *Colubrina oppositifolia*, *Flueggea neowawraea*, *Hibiscadelphus hualalaiensis*, *Nothoestrum breviflorum*, *Pleomele hawaiiensis*, and *Zanthoxylum dipetalum* var. *tomentosum*, or 300 mature individuals per population for *Bonamia menziesii*, *Cyanea stictophylla*, *Delissea undulata*, *Hibiscus brackenridgei*, *Phyllostegia velutina*, and *Plantago hawaiiensis*, throughout their known historical range considered by the recovery plans to be necessary for the conservation of each

species (see the discussion of conservation requirements in Section D, and in the table for Hawaii Z).

This unit contains a total of 10,738 ha (26,535 ac) on State and privately owned lands. This unit is predominately in the Kiholo watershed in the north with portions in the Honokohau, Keahole, and Waiaha in the southwest. This unit also contains most of the Puu Waawaa Wildilfe Sanctuary. The natural features of this unit include Hinakapoula (summit), Kalulu (summit), Kaupulehu Crater, Kileo (summit), Poohohoo (summit), Puu Huluhulu, Puu Iki, Puu Paha, and Puu Waawaa.

Table for Hawaii Z

Notes				
	*Species is wide ranging, each island was probably one large, population (may have been a couple of meta-populations on each island).	*Species is wide ranging, each island was probably one large, population.		*Dry cinder cones
14. Hybridization is possible.				
13. Restricted habitat requirements.				X*
12. Narrow endemic.				
11. Annual-500/pop.				
10. Short-lived perennial-300/pop.	X		X	X
9. Long-lived perennial-100/pop.		X		
8. Not all occupied habitat needed.		X		
7. Species with variable habitats.	X	X	X	
6. Several occ. vulnerable to destruction.	X	X		X
5. Non-viable populations.	X	X	X	X
4. Multi-island/no current other islands.				
3. Multi-island/current other islands.	X	X		X
2. Island endemic.			X	
1. 8-10 pop. guidelines.	X*	X*	X	X
Species	<u>Bonamia menziesii</u>	<u>Colubrina oppositifolia</u>	<u>Cyanea stictophylla</u>	<u>Delissea undulata</u>

Hawaii AA

The proposed unit Hawaii AA provides occupied habitat for 10 species: *Asplenium fragile* var *insulare*, *Hedyotis coriacea*, *Neraudia ovata*, *Portulaca sclerocarpa*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, and *Zanthoxylum hawaiiense*. It is proposed for designation because it contains the physical and biological features that are considered essential for their conservation on the island of Hawaii, and provides habitat to support 1 or

more of the 8 to 10 populations for each species and 100 mature individuals per population for *Zanthoxylum hawaiiense*, or 300 mature individuals per population for *Asplenium fragile* var *insulare*, *Hedyotis coriacea*, *Neraudia ovata*, *Portulaca sclerocarpa*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, and *Tetramolopium arenarium*, throughout their known historical range considered by the recovery plans to be necessary for the conservation of each species (see the discussion of conservation requirements in Section D, and in the table for Hawaii AA).

This unit contains a total of 28,384 ha (70,138 ac) on State, Federal, and privately owned lands and land under Federal jurisdiction. This unit lies predominately in the Pohakuloa watershed with the western edge in the Kiholo watershed. This unit also contains a small portion of the Mauna Loa Forest Reserve and the Mauna Loa Forest Reserve and portions of the Pohakuloa Training Area. The natural features of this unit include Kipuka Alala, Kipuka Kalawamauna, Lava Flow of 1843, Naohueleelua (summit), Puu Ka Pele, Puu Kea, Puu Keekee, Puuahi, and Waikahalulu Gulch.

Table for Hawaii AA

Notes	*Species is wide ranging † ** Big, moist lava tubes (from 3.05 m to 4.57 m (10 to 15 ft) in diameter), pits, deep cracks, and lava tree molds, with at least a moderate soil or ash accumulation	*Geologically young (<3,000 years old) Mauna Loa pahoehoe lava.		*Species is wide ranging †
14. Hybridization is possible.				
13. Restricted habitat requirements.	X**	X*		
12. Narrow endemic.				
11. Annual–500/pop.				
10. Short-lived perennial–300/pop.	X	X	X	X
9. Long-lived perennial–100/pop.				
8. Not all occupied habitat needed.	X		X	
7. Species with variable habitats.			X	X
6. Several occ. vulnerable to destruction.	X	X	X	X
5. Non-viable populations.	X	X	X	X
4. Multi-island/no current other islands.				
3. Multi-island/current other islands.	X	X		X
2. Island endemic.			X	
1. 8–10 pop. guidelines.	X*	X	X	X*
Species	<u>Asplenium fragile</u> var. <u>insulare</u>	<u>Hedyotis coriacea</u>	<u>Neraudia ovata</u>	<u>Portulaca sclerocarpa</u>

Hawaii BB

The proposed unit Hawaii BB provides occupied habitat for one species: *Sesbania tomentosa*. It is proposed for designation because it contains the physical and biological features that are considered essential for its conservation on the island of Hawaii,

and provides habitat to support 1 or more of the 8 to 10 populations and 300 mature individuals per population for *Sesbania tomentosa* throughout its known historical range considered by the recovery plan to be necessary for the conservation of this species (see the discussion of conservation requirements

in Section D, and in the table for Hawaii BB).

This unit contains a total of 43 ha (106 ac) on State owned land. This unit lies in the Keahole watershed along the coast and contains a portion of Kekaha State Park. There are no named natural features in this unit but it lies between Mahaiula Bay and Makolea Point.

Notes	*Species is wide ranging, each island was probably one large, population.
14. Hybridization is possible.	
13. Restricted habitat requirements.	
12. Narrow endemic.	
11. Annual-500/pop.	
10. Short-lived perennial-300/pop.	X
9. Long-lived perennial-100/pop.	
8. Not all occupied habitat needed.	X
7. Species with variable habitats.	X
6. Several occ. vulnerable to destruction.	X
5. Non-viable populations.	X
4. Multi-island/no current other islands.	
3. Multi-island/current other islands.	X
2. Island endemic.	
1. 8-10 pop. guidelines.	X*
Species	<u>Sesbania tomentosa</u>

Table for Hawaii BB

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a) of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out do not destroy or adversely modify critical habitat. Destruction or adverse modification of critical habitat occurs when a Federal action directly or indirectly alters critical habitat to the extent it appreciably diminishes the value of critical habitat for the conservation of the species. Individuals, organizations, States, local governments, and other non-Federal entities are affected by the designation of critical habitat only if their actions occur on Federal lands, require a Federal permit, license, or other authorization, or involve Federal funding.

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is designated or proposed. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with us on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. Conference reports provide conservation recommendations to assist the agency in eliminating conflicts that may be caused by the proposed action. The conservation recommendations in a conference report are advisory.

We may issue a formal conference report, if requested by the Federal action agency. Formal conference reports include an opinion that is prepared according to 50 CFR 402.14, as if the species was listed or critical habitat was designated. We may adopt the formal conference report as the biological opinion when the species is listed or critical habitat is designated, if no substantial new information or changes in the action alter the content of the opinion (see 50 CFR 402.10(d)).

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into formal consultation with us. Through this consultation, the Federal action agency would ensure that the permitted actions do not destroy or adversely modify critical habitat.

If we issue a biological opinion concluding that a project is likely to result in the destruction or adverse

modification of critical habitat, we also provide reasonable and prudent alternatives to the project, if any are identifiable. Reasonable and prudent alternatives are defined at 50 CFR 402.02 as alternative actions identified during consultation that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Director believes would avoid destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions under certain circumstance, including instances where critical habitat is subsequently designated and the Federal agency has retained discretionary involvement or control has been retained or is authorized by law. Consequently, some Federal agencies may request reinitiation of consultation or conferencing with us on actions for which formal consultation has been completed if those actions may affect designated critical habitat or adversely modify or destroy proposed critical habitat.

Activities on Federal lands that may affect critical habitat of one or more of the 47 plant species will require Section 7 consultation. Activities on private or State lands requiring a permit from a Federal agency, such as a permit from the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act (33 U.S.C. 1344 *et seq.*), or a section 10(a)(1)(B) permit from us, or some other Federal action, including funding (e.g. from the Federal Highway Administration (FHWA), Federal Aviation Administration (FAA), Federal Emergency Management Agency (FEMA)), permits from the Department of Housing and Urban Development (HUD), activities funded by the U.S. Environmental Protection Agency (EPA), Department of Energy (DOE), or any other Federal agency; regulation of airport improvement activities by FAA; and construction of communication sites licensed by the Federal Communication Commission (FCC) will also continue to be subject to the section 7 consultation process. Federal actions not affecting critical habitat and actions on non-Federal lands that are not federally funded, authorized, or

permitted do not require section 7 consultation.

Section 4(b)(8) of the Act requires us to briefly describe and evaluate in any proposed or final regulation that designates critical habitat those activities involving a Federal action that may adversely modify such habitat or that may be affected by such designation. We note that such activities may also jeopardize the continued existence of the species.

Activities that, when carried out, funded, or authorized by a Federal agency, may directly or indirectly destroy or adversely modify critical habitat include, but are not limited to:

(1) Activities that appreciably degrade or destroy the primary constituent elements including but not limited to: overgrazing; maintenance of feral ungulates; clearing or cutting of native live trees and shrubs, whether by burning or mechanical, chemical, or other means (e.g., woodcutting, bulldozing, construction, road building, mining, herbicide application); introducing or enabling the spread of nonnative species; and taking actions that pose a risk of fire.

(2) Activities that alter watershed characteristics in ways that would appreciably reduce groundwater recharge or alter natural, dynamic wetland or other vegetative communities. Such activities may include water diversion or impoundment, excess groundwater pumping, manipulation of vegetation such as timber harvesting, residential and commercial development, and grazing of livestock or horses that degrades watershed values.

(3) Rural residential construction that includes concrete pads for foundations and the installation of septic systems where a permit under section 404 of the Clean Water Act would be required by the Corps.

(4) Recreational activities that appreciably degrade vegetation.

(5) Mining of cinder or sand or other minerals.

(6) Introducing or encouraging the spread of non-native plant species.

(7) Importation of non-native species for research, agriculture, and aquaculture, and the release of biological control agents that would have unanticipated effects on the primary constituent elements of designated critical habitat.

If you have questions regarding whether specific activities will likely constitute adverse modification of critical habitat, contact the Field Supervisor, Pacific Islands Ecological Services Field Office (see **ADDRESSES**